

Amendments to the Claims:

Please add the following claims:

56. (new) A field emission display device comprising:

a photoelectric conversion device including a p-type substrate defining an upper surface,
an n-type doped region formed in said p-type substrate at said upper surface of said p-type substrate,
an n-type guard ring region spaced from said n-type doped region and formed in said p-type substrate at said upper surface of said p-type substrate, and
an electrically conductive metallic film formed over said upper surface of said p-type substrate, wherein said p-type substrate and said metallic film are arranged to define a metal-semiconductor Schottky barrier;
an electrically conductive grid structure;
an electrically conductive anode structure; and
an electron emitter conductively coupled to said photoelectric conversion device, wherein said electron emitter and said grid structure are displaced from said anode structure across a field emission region, and wherein said field emission region is defined in a vacuum.

57. (new) A field emission display device as claimed in claim 56 wherein said electron emitter is formed over said n-type doped region of said upper surface of said p-type substrate.

58. (new) A field emission display device as claimed in claim 57 wherein said electron emitter is formed integrally with said n-type doped region of said upper surface of said p-type substrate.

59. (new) A field emission display device as claimed in claim 56 wherein said

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emitter comprises a tip defining an emission apex.

60. (new) A field emission display device as claimed in claim 56 wherein said emitter comprises a plurality of tips defining respective emission apexes.

61. (new) A field emission display device as claimed in claim 56 wherein said metallic film is formed over at least a portion of said n-type doped region of said upper surface of said p-type substrate and over at least a portion of said n-type guard ring region of said upper surface of said p-type substrate.

62. (new) A field emission display device comprising:

a photoelectric conversion device including

a p-type silicon substrate defining an upper surface,

an n-type doped region formed in said p-type silicon substrate at said upper surface of said p-type substrate,

an n-type guard ring region spaced from and surrounding said n- type doped region and formed in said p-type silicon substrate at said upper surface of said p-type substrate, and

a platinum silicide metallic film formed over said upper surface of said p-type substrate, wherein said p-type substrate and said metallic film are arranged to define a metal-semiconductor Schottky barrier, and wherein said metallic film extends over an interior circumferential portion of said guard ring region and an exterior circumferential portion of said n- type doped region;

an electrically conductive grid structure;

an electrically conductive anode structure including a phosphor screen; and

a plurality of electron emitter tips integrally formed with said n-type doped region and conductively coupled to said photoelectric conversion device via said platinum silicide metallic film, wherein said electron emitter tips and said grid structure are displaced from said anode structure across a field

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emission region, and wherein said field emission region is defined in a vacuum.

63. (new) A field emission display device comprising:

- a photoelectric conversion device including
- a p-type silicon substrate defining an upper surface and a plurality of emitter tip profiles including respective emission apexes,
- an n-type guard ring region spaced from and surrounding said plurality of emitter tip profiles and formed in said p-type silicon substrate at said upper surface of said p-type substrate, and
- a platinum silicide metallic film formed over said upper surface of said p-type substrate and said emitter tip profiles, wherein said p-type substrate and said metallic film are arranged to define a metal- semiconductor Schottky barrier, and wherein said metallic film extends over an interior circumferential portion of said guard ring region;
- a silicon dioxide dielectric layer formed over a portion of said metallic film spaced from said plurality of emitter tip profiles;
- an electrically conductive grid structure separated from said metallic film and said substrate by said dielectric layer and arranged to define a portion of an emitter tip void spaced from and surrounding said plurality of emitter tip profiles; and
- an electrically conductive anode structure including a phosphor coated screen, said anode structure being spaced from said grid structure and said plurality of electron emitter tip profiles to define a field emission region, wherein said field emission region is defined in a vacuum.

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